

【CLAIMS】**【Claim 1】**

5 A refrigerator including a main body formed with a storage space and a door formed with an insulating layer therein and mounted to the main body for selectively opening and closing the storage space, the refrigerator comprising:

a dispenser including a dispenser housing installed in a concave portion of a front surface of the door and discharging water/ice to the outside;

10 a water tank installed between a door liner defining a rear surface of the door and the dispenser housing to be spaced apart by a predetermined gap from each of them, the water tank storing the water supplied from an external water supply source at a predetermined temperature and then providing the water to the dispenser; and

a heater installed adjacent to the water tank and selectively generating heat.

【Claim 2】

15 The refrigerator as claimed in claim 1, wherein a rear surface of the dispenser housing is shaped in a curved surface and a front surface of the water tank is shaped in a curved surface corresponding to the rear surface of the dispenser housing, thus causing the front surface of the water tank to be spaced apart by a predetermined interval from the rear surface of the dispenser housing.

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【Claim 3】

The refrigerator as claimed in claim 1 or 2, further comprising a temperature sensor for detecting a temperature of the water stored in the water tank, the temperature sensor being provided on an external surface of the water tank.

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【Claim 4】

The refrigerator as claimed in claim 3, wherein the front surface of the door further comprises a display through which the temperature of the water in the water tank detected in the temperature sensor is displayed.

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【Claim 5】

The refrigerator as claimed in claim 3, wherein the temperature sensor is seated in a sensor groove, the sensor groove is concavely formed in the external surface of the water tank.

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【Claim 6】

The refrigerator as claimed in claim 5, wherein the sensor groove is formed at a position facing the storage space when the water tank is installed in the interior of the door.

10 **【Claim 7】**

The refrigerator as claimed in claim 1, wherein the water tank is fastened to a support rib and thus fixed to the interior of the door, the support rib being extended from and formed on a rear surface of the dispenser housing.

15 **【Claim 8】**

The refrigerator as claimed in claim 7, wherein the water tank is formed with a fastening rib at a position corresponding to the support rib of the dispenser housing, and the water tank is fixed to the interior of the door by fastening the fastening rib to the support rib.

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【Claim 9】

The refrigerator as claimed in claim 1, wherein a tank main body of the water tank is formed with a through-hole through which foam liquid forming the insulating layer flows.

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【Claim 10】

The refrigerator as claimed in claim 9, wherein a plurality of the through-holes are bored through thinner portions of the tank main body.

30 **【Claim 11】**

The refrigerator as claimed in claim 1, wherein the water tank comprises a tank main body in which the water is stored, a neck formed integrally with the tank main body and having a relatively narrow flow sectional area, and a nozzle installed to the neck, injection-molded and connected to a drainpipe of the dispenser, the tank main body and the 5 neck being formed by a blow molding with the nozzle inserted therein.

【Claim 12】

The refrigerator as claimed in claim 11, wherein a flow sectional area of the nozzle is formed relatively narrower than that of the neck.

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【Claim 13】

The refrigerator as claimed in claim 1, wherein the water tank is bent and formed to conform to a rear surface of the dispenser housing and at least a surface of the dispenser housing adjacent thereto, and the water tank is bent and formed so that a portion getting 15 out of the rear surface of the dispenser housing is spaced apart by a predetermined interval from the dispenser housing.

【Claim 14】

The refrigerator as claimed in claim 13, wherein the water tank is bent and formed 20 to be spaced apart by a predetermined interval from the rear surface and a lower surface of the dispenser housing, and the water tank is installed in the interior of the door.

【Claim 15】

The refrigerator as claimed in claim 1, wherein the heater is installed on a rear 25 surface of the dispenser housing.

【Claim 16】

The refrigerator as claimed in claim 1 or 15, wherein the heater selectively applies heat to the water of the water tank, thus keeping the water at a predetermined temperature, 30 and the heater applies heat to a surface of the dispenser housing, thus preventing frostiness.

【Claim 17】

The refrigerator as claimed in claim 1, wherein a valve chamber is further formed in the insulating layer of the door to be opened to the storage space of the refrigerator main body, the valve chamber including a valve for controlling the water supply from the external water supply source and a filter for purifying the water.

【Claim 18】

The refrigerator as claimed in claim 17, wherein the valve chamber is selectively sheltered by a chamber cover.

【Claim 19】

The refrigerator as claimed in claim 1, wherein the water tank is installed in the interior of the door corresponding to a rear portion of the dispenser, and the water tank is sheltered by an openable and closable cover, thus being not under the influence of cold air in the storage space.

【Claim 20】

The refrigerator as claimed in claim 19, wherein the cover is formed with a cover insulating layer.

【Claim 21】

A refrigerator including a main body formed with a storage space and a door formed with an insulating layer therein and mounted to the main body for selectively opening and closing the storage space, the refrigerator comprising:

a dispenser including a dispenser housing installed in a concave portion of a front surface of the door and discharging water/ice to the outside;

a water tank installed between a door liner defining a rear surface of the door and the dispenser housing to be spaced apart by a predetermined gap from each of them, the water tank storing the water supplied from an external water supply source at a

predetermined temperature and then providing the water to the dispenser; and
a filter purifying the water delivered from the external water supply source and
supplying the water to the water tank.

5 **【Claim 22】**

The refrigerator as claimed in claim 21, wherein a support rib protrudes from and
is formed on a rear surface of the dispenser housing, a fastening rib is formed on the water
tank at a position corresponding to the support rib, and the water tank is fixed to the
interior of the door to be spaced apart by a predetermined interval from the door liner by
10 engaging the support rib and the fastening rib to each other.

【Claim 23】

The refrigerator as claimed in claim 21 or 22, wherein a tank main body of the
water tank is formed with a through-hole through which foam liquid flows.

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【Claim 24】

The refrigerator as claimed in claim 23, wherein a plurality of the through-holes
are bored through thinner portions of the tank main body.

20 **【Claim 25】**

The refrigerator as claimed in claim 23, wherein the water tank comprises a tank
main body in which the water is stored, a neck formed integrally with the tank main body
and having a relatively narrow flow sectional area, and a nozzle installed to the neck,
injection-molded and connected to a drainpipe of the dispenser, the tank main body and the
25 neck being formed by a blow molding with the nozzle inserted therein.

【Claim 26】

The refrigerator as claimed in claim 23, wherein a flow sectional area of the
nozzle is formed relatively narrower than that of the neck.

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【Claim 27】

The refrigerator as claimed in claim 23, wherein the water tank is bent and formed to conform to a rear surface of the dispenser housing and at least a surface of the dispenser housing adjacent thereto, and the water tank is bent and formed so that a portion getting 5 out of the rear surface of the dispenser housing is spaced apart by a predetermined interval from the dispenser housing.

【Claim 28】

10 The refrigerator as claimed in claim 27, wherein the water tank is bent and formed to be spaced apart by a predetermined interval from the rear surface and a lower surface of the dispenser housing, and the water tank is installed in the interior of the door.

【Claim 29】

15 The refrigerator as claimed in claim 26, wherein a valve chamber is further formed in the insulating layer of the door to be opened to the storage space of the refrigerator main body, the valve chamber including a valve for controlling the water supply from the external water supply source and a filter for purifying the water.

【Claim 30】

20 The refrigerator as claimed in claim 29, wherein the valve chamber is selectively sheltered by a chamber cover.

【Claim 31】

25 The refrigerator as claimed in claim 21, wherein the water tank is installed in the interior of the door corresponding to a rear portion of the dispenser, and the water tank is sheltered by an openable and closable cover and thus is not under the influence of cold air in the storage space.

【Claim 32】

30 The refrigerator as claimed in claim 31, wherein the cover is formed with a cover

insulating layer.

【Claim 33】

5 A refrigerator including a main body formed with a storage space and a door formed with an insulating layer therein and mounted to the main body for selectively opening and closing the storage space, the refrigerator comprising:

a dispenser including a dispenser housing installed in a concave portion of a front surface of the door and discharging water/ice to the outside; and

10 a reservoir installed in the insulating layer between a door liner defining a rear surface of the door and the dispenser housing, formed by arranging a tube repeatedly in a zigzag shape, storing the water supplied from an external water supply source at a predetermined temperature, and providing the water to the dispenser.

【Claim 34】

15 The refrigerator as claimed in claim 33, wherein the reservoir is formed by arranging the tube repeatedly in a zigzag shape, the tube being integrally formed with a supply pipe connected to the external water supply source, the tube being directly connected to a drainpipe through which the water is discharged from the dispenser.

20 【Claim 35】

The refrigerator as claimed in claim 33, wherein the reservoir is formed by arranging the tube repeatedly in a zigzag shape, the tube being separately formed from a supply pipe connected to the external water supply source, the tube being directly connected to a drainpipe through which the water is discharged from the dispenser.

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【Claim 36】

The refrigerator as claimed in claim 34 or 35, wherein the reservoir is fixed to a support rib, which is extended from and formed on a rear surface of the dispenser housing of the dispenser.

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【Claim 37】

A refrigerator including a main body formed with a storage space and a door formed with an insulating layer therein and mounted to the main body for selectively opening and closing the storage space, the refrigerator comprising:

- 5 a dispenser including a dispenser housing installed in a concave portion of a front surface of the door and discharging water/ice to the outside;
- 10 a water tank installed between a door liner defining a rear surface of the door and the dispenser housing to be spaced apart by a predetermined gap from each of them, the water tank storing the water supplied from an external water supply source at a predetermined temperature and then providing the water to the dispenser;
- 15 a temperature sensor installed on a side of the water tank and detecting a temperature in the water tank; and
- 20 a heater operating according to the temperature in the water tank detected by the temperature sensor, the heater generating heat when the detected temperature is lower than a preset temperature and being turned off when the detected temperature is higher than the preset temperature, thus keeping the temperature of the water tank at a predetermined value.

【Claim 38】

- 20 A method for manufacturing a door of a refrigerator having a dispenser, wherein a storage space of a main body of the refrigerator is opened and closed by the door and an external appearance of the refrigerator is defined by an outer door and a door liner, the dispenser is provided in the door so that the dispenser is exposed toward the outer door, and an insulating layer is installed between the outer door and the door liner so that the door liner is spaced apart by a predetermined interval from a water tank for supplying the water to the dispenser, the method comprising the steps of:

- 25 fixing a fastening rib of the water tank to a support rib formed on a dispenser housing of the dispenser installed in the outer door;
- 30 applying foam liquid to a rear surface of the outer door while the water tank is fixed; and
- 35 covering the rear surface of the outer door, to which the foam liquid is applied,

with the door liner, and filling the foam liquid between the door liner and the outer door.

【Claim 39】

A refrigerator having a dispenser, comprising:

5 a refrigerator main body including a storage space defined by inner and outer cases with an insulating layer formed therebetween, said storage space being divided into refrigerating and freezing chambers side by side by a barrier with an insulating layer formed therein;

10 a water tank installed in the insulating layer of the barrier, to store the water delivered from a water supply source; and

15 a dispenser installed in the storage space corresponding to the front of the water tank for providing the water delivered from water tank.

【Claim 40】

15 A refrigerator having a dispenser, comprising:

20 a refrigerator main body including a storage space defined by inner and outer cases with an insulating layer formed therebetween;

25 a water tank installed on a surface of the inner case defining an inner surface of a refrigerating chamber of the storage space, to store the water delivered from a water supply source; and

30 a dispenser installed in the storage space corresponding to the front of the water tank for providing the water delivered from water tank.